**REFERENCE: 54**

IDEM. Work Plan for Lane Street Ground Water Contamination

November 1, 2007 31 pages

EPANDED SITE INSPECTION
WORK PLAN FOR

SITE NAME Lane Street Ground Water Contamination

LOCATION Lane Street and County Road 106

EPA ID# INN000510229

Prepared by
Site Investigation Section
Indiana Department of Environmental Management

Preparer Mark Jaworski Date 10-31-07

Reviews and Approvals

| | | |
|---|---|---|
| Project Manager | | Date 10-31-07 |
| Site Investigation Chief | | Date 11-27-07 |
| Geology | | Date 11/2/07 |
| Chemical Evaluation | | Date 11/2/07 |
| Health and Safety Officer | | Date 11-26-07 |
| EPA | | Date |

Reference: 54

0001 A

# SITE INSPECTION WORK PLAN FOR

SITE NAME Lane Street Ground Water Contamination

LOCATION Lane Street and County Road 106

EPA ID# IND000510229

Prepared by
Site Investigation Section
Indiana Department of Environmental Management

Preparer Mark Jaworski Date _____

Reviews and Approvals

| | | |
|---|---|---|
| Project Manager | _____ | Date _____ |
| Site Investigation Chief | _____ | Date _____ |
| Geology | _____ | Date _____ |
| Chemical Evaluation | _____ | Date _____ |
| Health and Safety Officer | _____ | Date _____ |
| EPA | Erica Dale | Date 12/21/07 |

INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
FIELD INVESTIGATION TEAM
WORK PLAN

SECTION I. General Information

SITE NAME Lane Street Ground Water Contamination
LOCATION Lane Street and County Road 106, Elkhart, Indiana

PROPOSED DATE OF INSPECTION TBD

ESTIMATED FIELD HOURS (per worker) 40

PROJECT OBJECTIVE The project objective is to verify the presence of TCE in the drinking water of residential and commercial wells. Also, an effort will be made to determine the source of TCE groundwater contamination.

PROJECT DESCRIPTION A total of 112 groundwater samples will be collected. The 112 samples will include 56 residential/commercial drinking water samples and 56 ground water samples that will be obtained from 17 Geoprobe locations (three groundwater samples per Geoprobe location). The 112 groundwater samples will include eleven duplicates and three background samples. Staff will also obtain 5 soils samples, three will be from the source area, which will include one duplicate, and the other two will be background samples. In addition to the 112 water samples, there will be 6 trip blanks (one per cooler). A total of 118 water samples will be sent to the lab.

BACKGROUND REVIEW PERFORMED YES _X_ NO_____

Preliminary HRS Route Score GW 100__ SW __ AIR

Soil __

Total
Score (Sm) 50.00

Projected HRS score with
field work GW ___ SW ___ AIR

Soil _____

Total
Score 50.00

INSPECTION PRIORITY LOW __ MEDIUM _X_ HIGH

SECTION II

Site/Waste Characteristics

TYPE OF FACILITY Unknown Groundwater Plume

SITE DESCRIPTION The site lies in a mixed residential/commercial/industrial area The site is located on the northeast side of Elkhart, Indiana. The south side of County Road 106 is a residential subdivision and the north side of county Road 106 is an industrial park.

DISPOSAL METHODS Disposal methods in the area of concern are unknown. No obvious signs of illegal disposal or sloppy handling practices are evident in the industrial park north of County Road 106. The source(s) of the plume is unknown. Interviews conducted with representatives of the facilities in the industrial park have indicated that a waste management service disposes of their waste materials.

FEATURES OF DISPOSAL AREA Disposal areas that may be the source of the TCE ground water contamination on Lane Street have not been identified, All facilities within the industrial park have paved parking lots and well manicured lawns. No areas of stressed vegetation were observed.

HISTORY (complaints, agency, previous action)

In October 2006, a Phase I Environmental Site Assessment (ESA) was conducted for the Geocel facility located at 53280 Marina Road in Elkhart, Indiana. The ESA concluded that a subsurface investigation should be completed in the vicinity of a former (PCE) UST. The UST was removed in 1986. Subsequent investigations in this area indicated that a release of chlorinated solvents had occurred to the ground water pathway. The chlorinated solvents were found to have migrated off site to the south into a residential area. All residents in this area obtain drinking water from individual private wells. The water in many of the residential wells was found to contain elevated levels of volatile organic compounds. Geocel supplied carbon filters to the residents.

Geocel alerted IDEM and the Elkhart County Health Department about the ground water contamination and applied to IDEM's Voluntary Remediation Program (VRP). Geocel was accepted in the program on July 12, 2007.

Geocel's investigation concluded that the ground water contamination was confined to an area bordered by Kershner Street to the west, the Geocel facility to the north, County Road 113 to the east, and Crestwood Street to the south.

On August 22, 2007, Site Investigation of the Indiana Department of Environmental Management (IDEM) staff received a call from the Elkhart County Health Department (ECHD). The ECHD stated that a resident located at 43514 Lane Street had submitted a sample of her drinking water to the Water Quality Laboratory at Heidelberg College in Tiffin, Ohio. Lane Street, is located the next street to the west of Kershner Street. The analysis of the water revealed highly elevated levels of trichloroethylene (1560 µg/l) and other break down products. Geocel is not claiming responsibility for the contamination on Lane street because: 1) the ground water contamination lies outside of their area of influence, and 2) the ground water plume appears to be another plume consisting of other contaminants not detected on Kershner St.

| | |
|---|---|
| STATUS | Active X Inactive _ Unknown____ |
| WASTE TYPE(s) | Liquid X Solid_ Sludge _Gas |
| | Unknown____ |
| CHARACTERISTICS | Corrosive _ Ignitable _ Radioactive |
| | Volatile X_ Toxic _ Persistent |
| | Reactive _ Incompatible _ Unknown |
| | Other _____ |

Hazard Evaluation

SUBSTANCES BELIEVED TO BE PRESENT Trichloroethene and its biproducts

Refer to Chemical Evaluation Form

SECTION IV

Field and Laboratory Work Required

| | |
|---|---|
| Establish Perimeter | Yes x No |
| Map | Yes x No |
| Identify Contamination Zone | Yes x No |
| Geophysical Work | Yes x No |
| If Yes, specify | |
| Driling | Yes X No |
| Determine location of wells | Yes X No |
| Installation plans attached | Yes _ No X |
| Refer to | |
| Sampling Required | Yes X No__ |
| Identify locations | Yes X No__ |
| Map attached | Yes X No__ |
| If No, attach information | |
| | Locations undetermined at this time |
| Perform Site Recon | Yes X No__ |
| If No, attach information | |

Designated Laboratory Contract Laboratory Program

SUMMARY TABLE OF SAMPLING AND ANALYSIS PROGRAM

| SAMPLE MATRIX | FIELD PARAMETERS | LABORATORY PARAMETERS | Sample No. | Field Duplicate | Trip Blanks | MS/MSD[2,3] | Matrix Total[4] |
|---|---|---|---|---|---|---|---|
| Groundwater | | CLP VOCs | 101 | 11 | 6 | 30 extra vials | 118 |
| Soils | | 5035 Method (VOC) | 4 | 1 | 0 | | 5 |

See comment on page 2 regarding No. Samples

Note: MS/MSD do not get separate sample numbers. Therefore the number of samples is reflected in the Matrix Total.

1. The field quality control samples also include trip blank, which is required for VOA water samples. One trip blank, which consists of two 40-ml glass vials (preserved) for water samples, is shipped in each cooler of VOA samples.

2. Additional sample volume for the matrix spike/matrix spike duplicate (MS/MSD) is required for organic analysis, except for the OLC SOW. Samples designated for MS/MSD analysis will be collected, with extra sample volumes, at a frequency of one per group of 20 or fewer investigative samples. Triple the normal sample volumes will be collected for VOAs, and double the normal sample volumes will be collected for SVOCs and pesticides and PCBs.

3. For inorganic analysis, no extra sample volume is required for the spike and duplicate analyses, however, samples for the spike and duplicate analysis should be identified on the field COC at a rate of one per group of 20 or fewer investigative samples.

**IDENTIFY HERE IF SAMPLES ARE COLLECTED USING ANY OF THE 5035 METHODS, i.e., IN METHANOL, OR IN ENCORE TUBES

4. The number of samples to be collected for MS/MSD is not included in the matrix total. The number of trip blank samples is also excluded from the matrix total.

SUMMARY OF PROCEDURES AND ADDITIONAL COMMENTS: *(Sample point selection method)*

SITE SAFETY PLAN

PREPARED BY: Mark Jaworski
APPROVAL:

Section I. Site Safety Work Plan

| | | |
|---|---|---|
| Site Secured | Yes | No |
| Perimeter Identified | Yes | No |
| Contamination Zones Identified | Yes | No |

**Physical Hazards** *(Please check each that applies)*

☐ Heightened work surface *Notes/Measurements*:

---

☒ Impact *Notes/Measurements: The Geoprobe drill rig extends overhead*
☒ Falling or flying objects ☒ Overhead work or projection

---

☒ Compression *Notes/Measurements: Track mounted Geoprobe unit with hydraulic processes.*
☒ Rolling or pinching objects
☒Hands ☒ Feet ☒ Impact

---

☒Penetration *Notes/Measurements: Track mounted Geoprobe unit with hydraulic ram and/or augur operations.*
☒ Sharp objects which may pierce the hands or feet.

---

☒Heat *Notes/Measurements: The Geoprobe is equipped with a diesel engine. Hot exposed parts are present.*
☒Burns ❑ Eye Injury ☒ Radiant heat ❑ High humidity
☒High temperatures ❑ Lack of adequate ventilation

---

☒ Cold *Notes/Measurements: Sampling is planned for early December. Appropriate cold weather equipment will be used in conjugation with preplanned breaks to allow staff to stay warm.*



❑ Ionizing & Non-ionizing Radiation *Notes/Measurements: None expected*
❑ Gamma Rays ❑ Beta particles ❑ Alpha particles
❑ Ultraviolet ❑ Infrared ❑ Microwaves (If present contact ISHD 233-7153)

---

☒ Electrical *Notes/Measurements: The project manager will ensure that all utilities (buries/exposed/elevated) are located and marked prior to beginning operations.*

---

☒ Noise *Notes/Measurements: The Geoprobe routinely operates at greater than 85 dB. Hearing protection is required for staff operating or in the vicinity of the Geoprobe.*

---

❑ Confined spaces Staff will not enter confined spaces.

---

Biological Agents *Notes/Measurements: Poison ivy exposure can still occur in the winter.*

❑ Tuberculosis ☒ Hepatitis B ☒ Tetanus
☒ Poison Ivy ❑ Insects ☒ Stray Animals

---

Are **engineering** controls possible? ❑ Yes ☒ No (Explain)

---

Air monitoring will be conducted during all sampling activities. Staff will be equipped to avoid cold stress.

---

Are **Administrative** controls possible? **Yes** No (Explain)
Staff will operate in a buddy system. Staff will avoid areas of risk.

---

Level of Protection A B C **D**

PPE can be upgraded to Level C if air monitoring indicates elevated levels

Equipment and Materials
Refer to equipment list for sampling and decon.

Geoprobe
PPE: Safety boots, boot covers, hard hat, safety glasses, nitrile gloves, jersey gloves/leather gloves, insulated glove liners, hearing protection (ear plugs or ear muffs) animal repellent, trash bags, emergency eye wash, first aid kit.

Well Sampling
PPE: Safety boots, boot covers, safety glasses, nitrile gloves, insulated glove liners.

Site Entry Procedures
The Project Manager will conduct a safety briefing; explaining the HASP and site specific roles. Emergency exit routes and signals will be determined and explained to all staff.

Air monitoring shall be conducted prior to starting sampling activities, during sample collections and if site conditions change.

Exit and Decon. Procedures Staff will discard and dispose of used disposable PPE. Reusable PPE and sampling equipment will be field decontaminated and then bagged for later full decontamination.

Method of Wastes Disposal Generated as a Result of Inspection
All investigative derived wastes generated, including discarded PPE, during the sampling activities will be characterized by the Project Manager, waste determinations will be conducted and the wastes will be disposed of accordingly.

Personnel Required

| Name | Training | Function |
|---|---|---|
| Mark Jaworski | 40-Hour / 8-Hour Current | Project Manager |
| Doug Fisher | 40-Hour / 8-Hour Current | Team Member |
| Tim Johnson | 40-Hour / 8-Hour Current | Team Member |
| Bill Giles | 40-Hour / 8-Hour Current | Team Member |
| Dan Chesterson | 40-Hour / 8-Hour Current | Team Member |
| Steve McIntire | 40-Hour / 8-Hour Current<br>Geoprobe Operator Training | Geoprobe Operator |
| Kevin Herron | 40-Hour / 8-Hour Current<br>Geoprobe Operator Training | Driller Assistant |

Work Limitations

- Inclement weather (lightning) will cause the Geoprobe operations to cease.
- Failure to have utilities marked will cause the Geoprobe operations to cease.
- Inclement winter weather will cause sampling activities to cease.

Emergency Information

Site Resources (check applicable)

| | |
|---|---|
| Water | X |
| Telephone | X |
| Radio | X |

Other (specify)

**CHEMICAL EVALUATION**

Chemical Name 1,1-Dichloroethane (CAS#75-34-3)

Reference consulted (check all applicable)

NIOSH X CHRIS _ MERCK _ SAX _ ITI
POCKET GUIDE TO CHEMICAL HAZARDS
OTHER (specify) _____

Chemical Properties
Formula $CHCl_2CH_3$
Molecular Weight 99
Physical State Colorless oily liquid
Solubility in $H_2O$ 0.6%
in Benzene _____
other (specify) _____
Boiling Point 135°F
Flash Point 2°F
Vapor Pressure 182 mmHg
Melting Point _____
Specific Gravity Density 1.18
Flammable Limits LEL 5.4%
UEL 11.4%
Odor Threshold _____

PEL or TLV ppm SKIN
ppm ORAL
ppm INHALATION NIOSH TWA 100 ppm
OSHA PEL TWA 100 ppm
Ceiling (OSHA)

HUMAN/OTHER (specify)
LD50/LC50
Dermal Toxicity
Inhalation Toxicity

Decon/clean up procedures, recommendation: soap and water flush

Health hazards and recommendations, target organs, etc.: Inhalation/ingestion/direct contact
Skin irritant, CNS depressant, liver, kidney, lung damage
Incompatible/Reactive with strong oxidizers and strong caustics

Ground Water Sample Location Justification

Samples A through Z, SS -----These samples are drinking water samples that will be obtained from private residential wells located on and near Lane street. These samples will verify which ground water samples contain elevated levels of volatile organic compounds.

Samples AA through NN, PP and QQ-----Theses sample are drinking water samples that will be obtained from residential wells located on Kershner Street. As stated in the background history, the contaminated wells located on Kershner Street are being addressed by the Geocel facility located to the north under the auspices of IDEM's VRP. Representatives for Geocel indicated to IDEM's Voluntary Remediation Program that only vinyl chloride and no TCE was being detected in the residential wells on Kershner street. However, TCE and PCE has been detected in indoor air samples collected from residences on Kershner, and the premise that TCE is not present in the ground water has not been confirmed by IDEM staff. The sampling of these wells will determine if TCE is truly not detected in these residential wells and may determine that the contamination on Lane Street is a separate plume from Kershner Street. These samples will be used in conjunction with the Geoprobe findings to evaluate the contaminant plume(s).

Samples OO, and RR through XX--- These samples will be collected from the facilities located in the industrial park north of County Road 106. These samples will determine background ground water conditions.

Samples WW, UU, and Geoprobe location O sample are considered background ground water samples for all impacted ground water samples

Geoprobe Sample Justification

IDEM staff is proposing 17 Geoprobe locations. Staff will use a Geoprobe to obtain subsurface soils and ground water samples. These samples will determine the local geologic conditions of the site, determine ground water flow direction, and locate the source of the ground water contamination.

The majority of residential wells are set at 31 feet. Ground water flow is assumed to be south to southwest, based on ground water flow diagrams from Geocel consultants. Contamination is moving vertically in the aquifer and therefore we have a diving plume. Since we expect that that the source of contamination is in the shallow subsurface, it is important to sample at multiple depths in the aquifer.

The 17 locations are shown on the Lane Street Geoprobe Location Map and are designated as Locations A through P. Soil samples will be continuously collected until reaching the static water table.

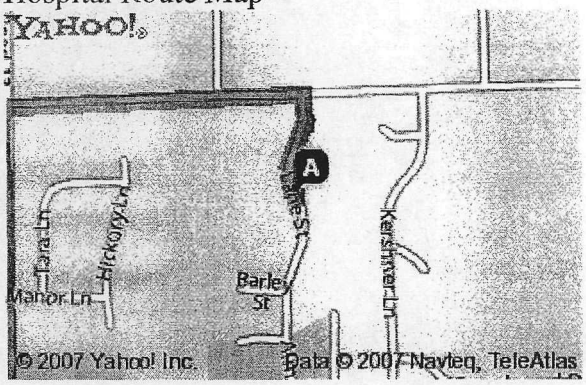
The first ground water sample at each location will be collected at the surface of the groundwater table, which is expected at be at a depth of 7 to 8 feet. The second ground water sample will be collected at depths of 15 to 17 feet. The third sample will be obtained at 30 to 32 feet below the ground surface.

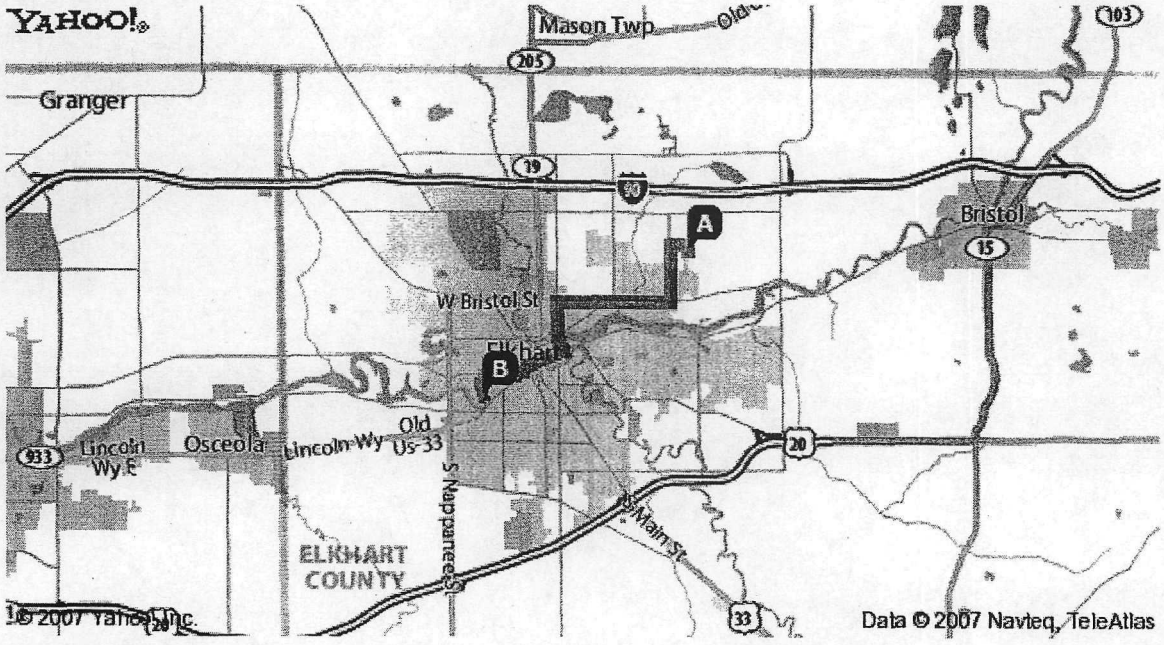
Temporary (five day) one inch monitoring wells will be constructed at three Geoprobe locations. The three temporary wells are designated as Geoprobe Locations F, Q, and H on the Lane Street Geoprobe Location Map. The one inch wells will be screened across the water table. They will be surveyed to a common datum and be used to calculate ground water flow direction in the immediate area. Since these wells are only temporary wells/piezometers, these wells will be removed at the end of the sampling event

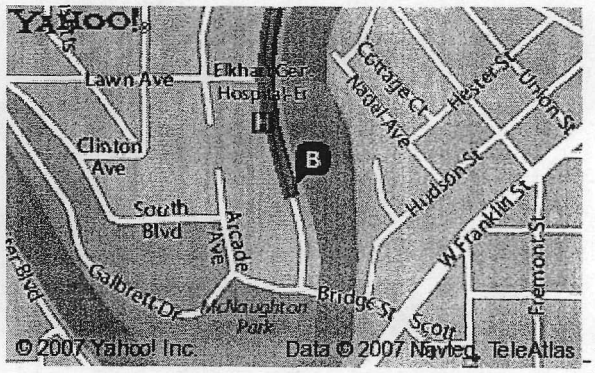
## Subsurface Soil Samples

After the geoprobe investigation has been completed, it is anticipated that the source of contamination may be known or suspected. Six surface/subsurface samples are proposed to be collected in the suspected source area. Three background samples will be obtained within the industrial park north of the suspected source area. Due to the fact that the source area will not be known until completion of the Geoprobe investigation, a soil sample location map or any detailed location of the soil samples cannot be provided at this time.

Hospital Route Map



Emergency Contacts

| | |
|---|---|
| Epidemiologist (Clayton Koher) | 312 353-6085 |
| CDC ATSDR Emergency Response | 404 498-0120 (24 Hour) |
| EPA National Response Center | 800-424-8802 (24 Hour) |
| IDEM Emergency Response | 317/233-7745 or 888/233-7745 (24 Hour) |
| Indiana State Chemist Office | 765/494-1492 |
| IDEM Health & Safety (Dave Appel) | 317/232-4867 |
| IDEM Vehicle Problems (Nicole Kane) | 317/232-4518 |
| Methodist Occupational Health Center (1101 Southeastern Ave., Indpls) | 317-955-2020 (24 Hour) |
| ISDH Radiological (Jane Smith) | 317-921-5500 |
| ISDH Radiological (Rex Bowser) | 317-351-7190 ext. 257 |

FIELD MONITORING EQUIPMENT CHECK-OUT

Type of instruments: Multi Rae (4 units)

Serial number: _____

Date of calibration: Should be calibrated prior to use.

Type of calibrate gas: Isobutylene and standard multi-gas mix

Fully charged yes no

Units should be charged prior to taking into the field. Additionally, alkaline batteries can be used in these units.

## FIELD MONITORING RESULTS

| | | | Breathing Zone | Work Zone |
|---|---|---|---|---|
| Location of monitoring | 1) | _____ | ❑ | ❑ |
| Results (Peak reading) | | _____ | ❑ | ❑ |
| Location | 2) | _____ | ❑ | ❑ |
| Results | | _____ | ❑ | ❑ |
| Location | 3) | _____ | ❑ | ❑ |
| Results | | _____ | ❑ | ❑ |
| Location | 4) | _____ | ❑ | ❑ |
| Results | | _____ | ❑ | ❑ |

**** Breathing zone is identified as a hemisphere surrounding the lower half of the face***

Do air monitoring results modify original PPE selection? YES NO

Describe modifications to level of PPE.

Department of Environmental Management
Quality Assurance Records Log

Site Name Lane Street Ground Water Contamination Record and Documentation
(check all that apply)

Site ID Number _____

| | |
|---|---|
| General Work Plan | X____ |
| Safety Plan | X____ |
| Log Books | X____ |
| Photos | X____ |
| Chain of Custody | X____ |
| Traffic Reports | X____ |
| Field Collected Information | X____ |
| Analytical Information | _____ |
| QA | |
| Technical Review | _____ |
| Editorial Review | _____ |
| QA Report | _____ |
| QA Record | _____ |
| Calibration Record | _____ |
| Preinspection Meeting | _____ |
| Drilling Logs | _____ |
| Correspondence | _____ |
| Reports | _____ |

Record Description Document No.

SAMPLING EQUIPMENT LIST
(Not inclusive)

| QUANTITY | ITEM |
|---|---|
| _____ | 2" Teflon Bailers |
| _____ | 4" Teflon Bailers |
| _____ | Fultz Pump (portable well pump) |
| _____ | Keck Pump (1-portable, 2-auto battery) |
| _____ | Well Wizard Bladder Pumps |
| _____ | Well Wizard Controllers |
| _____ | Submersible Pump |
| _____ | Generators |
| X____ | Peristaltic Pumps |
| _____ | Filter Stand Apparatus |
| _____ | Filter Paper (.45 um) |
| X____ | Static Water Level Indicator |
| _____ | Hydrolab (pH, SC, temp meter) |
| _____ | Hydac (pH, SC, temp) |
| _____ | Orion (pH meter) |
| _____ | Power Auger |
| _____ | Small Auger |
| _____ | Coliwasas (disposable) |
| _____ | Shallow Sludge Sampler (PACS) |
| _____ | Grain Thief (granular solid sampler) |
| _____ | Sludge Core Sampler, Wildco (& inserts) |
| _____ | Soil Core Sampler, Back-Saver |
| _____ | Stainless Steel Inserts, Back-Saver |
| _____ | Acetate Zero Contamination Inserts |
| X____ | Stainless Steel Spatulas |
| _____ | Post Hole Digger |
| X____ | Shovel, Pointed Tip |
| _____ | Trier Sampler |
| _____ | Ponar Grabs, Wildco |
| _____ | Bacon Bombs, Wildco |
| _____ | Flint Glass/Plastic Tubes, _" ID |
| _____ | Solvent/Waste Containers |
| _____ | Pond Sampler |
| X____ | RaeSystems MiniRae Photoionizer |
| _____ | GasTech Multimeter |
| _____ | RaeSystems MultiRae PID/Multimeter |
| _____ | Geiger Counter |

| | | |
|---|---|---|
| ____ | Plastic Scoops (disposable) | |
| X____ | Metal (chrome plated) Trowels | |
| ____ | Stainless Steel Scoops | |
| X____ | 100 ft. Steel Tape Measure | |
| ____ | Rock Pick, 20 oz. Chisel Edge | |
| X____ | Tool Boxes | |
| X____ | Stainless Steel Buckets | |
| ____ | Stainless Steel Pouring Beakers | |
| ____ | Plastic Buckets | |
| ____ | Pressure Sprayers | |
| ____ | Fire Extinguishers | |
| ____ | Stretch Film Dispenser | |
| X____ | Walkie Talkies | |
| ____ | Niton X-Ray Fluorescence Analyzer | |
| ____ | Self-Contained Breathing Apparatus | |
| ____ | MSA Custom 4500 Air Mask | |
| ____ | Air Cylinder | |
| ____ | Ultravue Face Piece | |
| ____ | MSA Respirator, Ultra-Twin, Full Face | |
| ____ | Bailer, For 2 Inch Well | |
| ____ | MSA Respirator Cartridges | |
| ____ | Span Gas Cylinder For Calibration Part #83-101- | 351 |
| ____ | Regulator For Use With The Span Gas Cylinder | |
| ____ | Calibration Kit For MultiRae | |
| ____ | Calibration Kit For MiniRAE | |
| X__ | FUJI TW 300 Camera, 35mm | |
| X____ | Case For FUJI TW 300 | |
| ____ | Gastechtor, Model #1314, STK #72-0135 | |
| ____ | Ponar Grab Dredge, 9" X 9" | |
| ____ | Steel Cable, For Dredge | |
| ____ | Auger Soil Sampler With "T" Handle | |
| ____ | Saran X Level C Outerwear | |
| __ | Boot Covers NUKE BOOT 2W | |
| X__ | Gloves, Disposable SILVER SHIELD | |
| X____ | Hard Hats | |
| X__ | Cooler | |
| X__ | Duct Tape | |
| X__ | Trash Bags | |
| ____ | Sheet Plastic for Decon | |
| ____ | Post Hole Digger | |
| ____ | Weed Whip | |
| ____ | Personal Copier | |
| ____ | Toner Cartridge | |

| | |
|---|---|
| ___ | 5L Carrying Bag |
| X | Soil Sampling Kit |
| X | Film |
| X | Paperwork |
| X | Seals |
| X | Labels |
| X | Trash Bags |
| X | Pens |
| X | Maps |
| ___ | 1-L Glass Amber Bottles (wide mouth narrow mouth _) |
| ___ | 8 oz. Jars |
| X | 40 ml vials |

## Geoprobe Safety Information

**THE GEOPROBE OPERATOR WILL HAVE FINAL DECISION ON WHERE TO DRILL, HOW TO DRILL AND WHEN TO CEASE OPERATIONS.**

This project will include the use of the Geoprobe drill rig. There are inherent dangers in using any drill rig. These dangers include but are not limited to:

- Compression from moving parts or treads.
- Heat and carbon monoxide from the diesel engine on the Geoprobe.
- Noise from the engine, hydraulics, rotating equipment, and or hammer attachments.
- Potentially unguarded rotating parts.
- Lifting and handling heavy parts.
- Contact with utilities [overhead or buried].
- Lightning, inclement weather.

To mitigate these hazards, one (1) person shall be designated as the operator. This individual will be in complete control of the Geoprobe operation and will determine the following:

- Have all boring sites been identified and evaluated prior to beginning drilling activities?
- Have all utilities been adequately marked?
- Is the location reasonably safe to conduct subsurface activities?
- If any other individuals are allowed in the vicinity of the Geoprobe while it is operating?
- Is the weather forecast/actual conditions a factor and is there a chance for lightning is the drilling area.

Any changes to boring locations or alterations to the work plan must be evaluated and approved by the Geoprobe operator. The operator will have the ultimate decision on location and specifics of the boring operations.

Air monitoring will be conducted continuously when the Geoprobe is being operated.

The Geoprobe should not be moved while the drill rig is extended.

No persons shall ride on the Geoprobe.

The Geoprobe has limitations related to operating on slopes. The designated operator will determine use in these situations.

Air Monitoring Action Levels

Photo Ionization Detector (MiniRae, HNu) and Flame Ionization Detectors (FID)

**Known Constituents**

| | |
|---|---|
| 0-5 meter units | Level D |
| 5-50 meter units * | Level C |
| 50-500 meter units* | Level B |
| >500 meter units* | Leave Area |

* The aforementioned levels are valid only for known compounds detected in the breathing zone and are superceded by chemical specific permissible exposure levels (PEL).

**Unknown Constituents**

| | |
|---|---|
| 0-5 meter units | Level D |
| 5-20 meter units | Level C |
| 20-100 meter units | Level B |
| >100 meter units | Leave Area |

Combustible Gas Indicator

| | |
|---|---|
| 0-10% LEL | Continue investigation |
| 10-15% LEL | Continue with caution |
| >15% LEL | Leave Area, Fire Hazard |

Oxygen Meter

| | |
|---|---|
| <19.5% | Supplied air (SCBA) required |
| 19.5-23.5% | Continue with caution |
| >23.5% | Leave Area, Increased fire hazard |

All measurements for known and unknown constituents must be conducted in the breathing zone

CHEMICAL EVALUATION

Ch Chemical Name Trichloroethene (CAS 79-01-6)

Reference consulted (check all applicable)
NIOSH x CHRIS _ MERCK _ SAX _ ITI
POCKET GUIDE TO CHEMICAL HAZARDS
OTHER (specify) ATSDR Tox File
Chemical Properties

Formula $ClCH=CCl_3$ $C_2HCl_3$
Molecular Weight 131.4
Physical State liquid
Solubility in $H_2O$ 1.070g/l
in Benzene Infinite
other (specify) _____
Boiling Point 86.7° C 189° F
Flash Point None
Vapor Pressure 58mm Hg
Melting Point -87.1° C
Specific Gravity Density 1.465g/ml
Flammable Limits LEL @77° F 8%
UEL @77° F 10.5%
Odor Threshold 100ppm in air

PEL or TLV ppm SKIN (NIOSH Carcinogen)
ppm ORAL
$MG/M^3$ INHALATION (NIOSH Carcinogen)100 ppm
OSHA PEL TWA 100 ppm
Ceiling (OSHA) 200 ppm

HUMAN/OTHER (specify)
LD50/LC50
Dermal Toxicity -yes
Inhalation Toxicity -yes

Decon/clean up procedures, recommendation Alconox (soap and water)

Health hazards and recommendations, target organs, etc.

Respiratory system, heart, liver, kidneys, CNS, and skin

Incompatible/Reactive with strong caustics and alkalis; chemically active metals (i.e. barium, lithium, sodium, titanium & beryllium).

**CHEMICAL EVALUATION**

Chemical Name Vinyl Chloride (CAS # 75-01-4)

Reference consulted (check all applicable)

NIOSH X CHRIS _ MERCK _ SAX _ ITI
POCKET GUIDE TO CHEMICAL HAZARDS
OTHER (specify) _____

Chemical Properties
Formula $CH_2$=CHCl
Molecular Weight 62.5
Physical State Colorless gas or liquid (below 7°F)
Solubility in $H_2O$ 0.1% (77°)
in Benzene _____
other (specify) _____
Boiling Point 7°F
Flash Point N/A (Gas)
Vapor Pressure 3.3 atm.
Melting Point _____
Specific Gravity Density _____
Flammable Limits LEL 3.6%
UEL 33.0%
Odor Threshold _____

PEL or TLV ppm SKIN (NIOSH Carcinogen)
ppm ORAL
$MG/M^3$ INHALATION (NIOSH Carcinogen)
OSHA PEL TWA 1 ppm

Ceiling (OSHA) 5 ppm (15-minute)

HUMAN/OTHER (specify)
LD50/LC50
Dermal Toxicity
Inhalation Toxicity

Decon/clean up procedures, recommendation: N/A gas
Health hazards and recommendations, target organs, etc.: Inhalation/ direct contact
Liver, CNS, respiratory system, lymphatic system (liver cancer)

Incompatible/Reactive with copper, oxidizers, aluminum, peroxides, iron and steel.

Local Resources

| | Name | Number | Address |
|---|---|---|---|
| Ambulance | Medtec Ambulance | (574) 642-4954 | 17160 Hackberry |
| Hosp. Emerg. | Fastrak | (574) 523-3315 | 600 East Road |
| | Haz mat capable – phone verified | | |
| Police Dept. | Elkhart Police Dept. | (574) 295 7070<br>911 | 175 Waterfall Drive |
| Fire Dept. | Elkhart Fire Dept. | (574) 293-8931<br>911 | 500 East Road |
| Airport | Elkhart City Airport | (574) 264-5217 | 2246 Airport Drive |

Directions to Hospital

**LANE ST, ELKHART, IN**

| | | | |
|---|---|---|---|
| 1. | Start at **LANE ST, ELKHART** going toward **COUNTY ROAD 106** | go **0.1** mi | 0.1 mi |
| 2. | Turn **L** **LEFT** on **COUNTY ROAD 106** | go **0.3** mi | 0.4 mi |
| 3. | Turn **L** **LEFT** on **COUNTY ROAD 13** | go **0.3** mi | 0.7 mi |
| 4. | Continue on **JEANWOOD DR** | go **0.7** mi | 1.4 mi |
| 5. | Turn **R** **RIGHT** on **E BRISTOL ST** | go **2.0** mi | 3.4 mi |
| 6. | Turn **L** **LEFT** on **JOHNSON ST** | go **0.9** mi | 4.3 mi |
| 7. | Turn **R** **RIGHT** on **E JACKSON BLVD** | go **0.7** mi | 5.0 mi |
| 8. | Continue on **VISTULA ST** | go **0.1** mi | 5.1 mi |
| 9. | Bear **R** **RIGHT** on **W LEXINGTON AVE** | go **0.7** mi | 5.8 mi |
| 10. | Turn **L** **LEFT** on **EAST BLVD** | go **0.4** mi | 6.2 mi |
| 11. | Arrive at **600 EAST BLVD, ELKHART,** on the **L** **LEFT** | | |

Kev
Leda

| | M | T | W | TH | F |
|---|---|---|---|---|---|
| IDEM | STEVE M | STEVE M | STEVE M | STEVE M | STEVE M |
| | TJ | KEVIN H | KEVIN H | KEVIN H | KEVIN H |
| | LEDA | LEDA | ROBYN | ROBYN | |
| | CHRIS | CHRIS | JOY | DIANE Os | |
| EPA | KEVIN S | KEVIN S | KEVIN S | KEVIN S | KEVIN S |
| | AUNNA | AUNNA | AUNNA | NAMRATA | |
| | EPA | EPA | EPA | ~~EPA~~ | EPA |
| | EPA | EPA | EPA | EPA | EPA |
| RESIDENTIAL 1 | BILL | ½ BILL | ½ TIM | | |
| | TIM | TIM | JOY | | |
| RESIDENTIAL 2 | JOY | JOY | TJ | | |
| | TARA | TJ | TARA | | |
| FORMS | DAN | DAN | DOUG | DOUG<br>TARA<br>~~NAMRATA~~ | DOUG |
| | SANDRA | DOUG | NAMRATA | | |
| | DOUG | SANDRA | | | |
| GC | CHRIS F | CHRIS F | CHRIS F | CHRIS F | CHRIS F |

0029

**United States Environmental Protection Agency**
**Region V**
**77 West Jackson Boulevard**
**Chicago, Illinois 60604**

**Superfund Division**

**Facsimile Cover Sheet**
**Telephone Number**
**312-886-4071**


**To:** Mark Jaworski

**Office phone:** 317 233 2407 **Machine No:** ~~317 233 2773~~ 317 234-0428

**From:** Erica Isles

**Office phone:** 353-7209 (312) **Mail code:** SR-6J

**Date:** 3/21/08 **Number of pages, including cover:** 2

**Message:** Signature page: Lane St SI Workplan

**Signature:** Erica Isles

0030